Survey Methods

All data in this report are from the 2001 and 2003 Montana BRFSS. In each of these years, a representative sample of non-institutionalized Montanans age 18 and older was selected for telephone interview. The total sample size was 3,338 adults in 2001 and 4,024 adults in 2003.

The methods for survey sampling and interviewing followed BRFSS protocol. Briefly, individual respondents were randomly selected from among all adults living in randomly sampled Montana households. The sample was stratified among three regions to ensure adequate representation of rural Montanans and American Indians *(10, 11)*.

Trained, experienced professionals interviewed the selected respondents. Interviews were conducted on weekdays and weekends and at various hours to ensure the selected individual had ample opportunity to participate. The Montana BRFSS was conducted by Northwest Resource Consultants (Helena, MT) in 2001 and by ORC Macro (Burlington, VT) in 2003. Survey response rates were 70.8 percent and 59.0 percent, respectively.

Data Analysis

SPSS 12.0 for Windows Complex Samples™ was used to compute prevalence estimates and standard errors for this report, using sample weights provided by CDC. Respondents who answered they did not know or refused to answer a question were excluded from the calculation of prevalence estimates.

Each year's data were weighted to account for differences in the probability of selection. Additionally, post-stratification weighting, based on Montana population estimates, was applied to ensure the sample more closely reflected the adult population of Montana. Demographic characteristics of survey respondents with and without disability are described in Table 2.

Weighted prevalence estimates and unweighted counts are tabulated in this report, along with 95% confidence intervals[1]. Where confidence intervals do not overlap, differences between subgroups are statistically significant. A statistical test is needed to determine significant differences when confidence intervals overlap. Chi-square tests were calculated in a few instances where confidence intervals slightly overlapped and significant differences were reported in the text when the test p-value was ≤ 0.05.

[1] The 95% confidence interval gives a range of values around the estimated prevalence where the actual prevalence in the Montana adult population can be expected to be located, with 95% certainty.

Survey Limitations

The results in this report should be interpreted with consideration of the following limitations. Survey respondents may have the tendency to under-report behaviors perceived as socially undesirable or unhealthy and over-report those thought to be desirable. The ability of survey participants to recall past behaviors and events may also affect the accuracy of self-reported information.

Telephone surveys exclude households without telephone service[2] and survey bias may result from under-representation of certain segments of the population. The 2.8 percent of households without telephone service in Montana *(12)* may represent a segment with lower socio-economic status and associated higher risks for certain behaviors and conditions—including disability. However, a recent study suggests that population telephone surveys do not under-represent adults with disabilities *(13)*.

Two additional factors related to the current BRFSS methodology may have contributed to under-representation of adults with disability in the survey samples:

1) BRFSS methodology does not include adults with communication or other impairments that affect their ability to answer the telephone or telephone survey questions.
2) BRFSS methodology does not include adults who live in institutions in the survey sample. Institutions include nursing homes or other long-term care facilities, state facilities (e.g., Montana Developmental Center, Montana State Hospital), and prisons. The BRFSS methodology also excludes adults who live in residential group homes.

The information presented in this report is necessarily limited by the methodology and questionnaire content of the BRFSS. Telephone surveys are restricted in the type and quantity of information that can be collected. The optional modules included in the Montana questionnaire vary substantially from year to year, and certain core modules are included in alternating years only. In the 2001 and 2003 surveys, data on the Leading Health Indicators were thus limited (e.g. substance abuse, sexual behavior, specific mental health data, violence); also, certain data that describe known areas of health disparities between people with and without disabilities were not collected in these years, when the disability questions were asked (e.g. cancer screening, women's preventive health screening, oral health).

[2] And do not include cellular phones.

Other Considerations

Survey respondents with disability were older than those without disability, in both survey years. Older adults tend to have more health-related problems and different risk behavior patterns than younger adults. The data in this report were analyzed and reported by age category to minimize age-associated differences and allow for meaningful comparisons[3].

Although there may be gender-specific and other associations within the data that could be examined, the analyses required to discern them are beyond the scope of this report. These will be addressed in the future. Also, the sample sizes for specific race/ethnic groups, such as American Indians, were too small to make reliable generalizations about these sub-populations with disability.

Results from both the 2001 and 2003 Montana BRFSS are presented in most tables in this report. The results reported for the two years are similar; however, the 2003 sample size was larger and therefore prevalence estimates were more precise. For simplicity and clarity, the text and figures in the following pages highlight results from the 2003 BRFSS only.

The operational definition of disability used in this report, as explained in the introduction, is activity limitation and/or use of assistive devices. These are generally accepted indicators of disability in established health surveys, including the National Health Interview Survey (NHIS) of the National Center for Health Statistics and the Survey of Income and Program Participation (SIPP) of the U.S. Census Bureau. This definition, now also used in the BRFSS, does not account for the duration and severity of disability, which can vary considerably during an individual's life. Since the BRFSS is cross-sectional data, it does not allow for assessment of this dynamic nature of disability. In addition, these survey questions represent undocumented self-reported data that have not been validated as measures of disability to date. However, questions in surveys such as the BRFSS should allow for more uniform surveillance and public health research at the state and national level.

[3] We presented age-specific rates as an alternative to age-adjustment, since age adjustment is a method for aggregating age-specific rates into an overall rate that reflects age differences in two or more populations. For further discussion, please see Fleiss *(14)*.